Title: Alien plant species in the flora of heavy-metal sites (the Silesia-Cracow Upland) : [poster]

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Poland's largest resources of zinc and lead ores are located in the southern part of the country (the Silesia-Cracow Upland). The many-years' mining and smelting activity have caused the degradation of landscape and destruction of natural vegetation. The soil is poor in nutrients and contains considerable amounts of heavy metals (mainly zinc, lead and cadmium). These areas are colonized by plants which are highly tolerant to environmental stress. Unique plant communities are formed, and species with interesting biological features grow there.

Floristic studies were carried out in 2004 and 2014 in the five areas of irregular shape. These area represent different ore deposits regions, in which Zn and Pb ore has been mined and processed for many ages, such as: Bolesław, Jaworzno, Chrzanów and 2 places in Tarnowskie Góry.

Based on the analysis of vascular diversity in the investigated sites, it has been determined that the native species dominate there (90%).

In 2004, the species of alien plants constituted only a small percentage of the flora of heavy-metal sites. They used to appear mostly at the outskirts of the studied places, at the paths, very rarerly on slagheaps' surfaces. The group of tree species comprised: *Acer negundo*, *Padus serotina*, *Quercus rubra, Robinia pseudoacacia*. Herbaceous plants included, among others: *Solidago canadensis*, *Aster novi-belgii, Bunias orientalis*, *Impatiens parviflora* and *Reynoutria japonica*.

In 2014, some new species appeared in the studied areas, which have never been seen there: *Juglans regia*, *Aesculus hippocastanum*, *Fraxinus pennsylvanica*, *Echinocystis lobata* and *Parthenocissus inserta*. In addition, the area occupied by the alien plant species (earlier registered) has increased.

As a result of this research, it is suggested that monitoring of heavy-metal sites should be undertaken, especially, in the areas where calamine grasslands – protected within the Natura 2000 network – occur.